UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,733	06/23/2003	Robert Davis	PD-202133	9024

7590   01/05/2007
Hughes Electronics Corporation
Patent Docket Administration
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EXAMINER
KOSTAK, VICTOR R

ART UNIT	PAPER NUMBER
2622	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>15 December 2006</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23 and 25-30* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23 and 25-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

Claims 1-20, 29 and 30 are now rejected under 35 U.S.C. 103(a) as being unpatentable

over Dye et al. in view of any one of Youn, Chaddha, Yamaguchi, Selby and Brooks (all made of

record in the last Office action).

Reviewing the A/V receiving and processing system of Dye (noting particularly Figs. 1B,

2A, 2B, 3 and 5), it involves a television (or computer monitor) connected to a set-top box 57

(applicant's claimed personal multimedia device) that increases the frame rate of a received

video signal when it is less than the native frame rate format, or decreases the received format

when is greater than the native receiver frame rate format (section [460]). The decision to

convert the frame rate inherently requires a comparison between the received and native formats

in order to first detect that the condition exists, upon initial detection of the incoming video

signal and its format.

Sections [0015] and [0080] point out that the STB of Dye handles digital television

signals (which applicant now recites).

Section [0460] states that up-converting or down-converting the input frame rate is done

to match the native format display device. Down conversion of a frame rate is characterized by a

reduction of the amount of frames per unit time relative to the original amount of frames per that

same unit of time. Therefore, there are lesser frames than the original amount of frames per unit

time in the down-converted state. Regardless of how the remaining lesser frames are derived

from the greater amount of original frames (such as by blending two to become one, The original

frames cannot all remain because the amount of frames *must* be less than the amount of original

frames that defines a down-converted frame rate.

It would have been obvious to one of ordinary skilled in the art to drop or skip frames to

achieve a lesser frame rate instead of by blending, for the benefit of minimizing processing, such

skipping or dropping being expressly disclosed in:

(1) section [0056] of Youn, who states that *"frame skipping is also needed when an end-user only supports a lower frame-rate."*

(2) section [0071] of Chaddha, where it says: *"If a frame rate lower than that provided .. temporal layers can be dropped which are unnecessary for achieving the desired frame rate."*

(3) section [0029] of Yamaguchi where it is stated that *"a frame conversion method ... comprising a second frame rate that is lower than the first frame rate ... by means of a frame-based skip process ..."*

(4) section [0034] of Selby who points out that *"for frame rate down conversion, one of the input frames is dropped from the output sequence."* and

(5) col. 7 lines 24-26 of Brooks discloses that *"frame rate block will drop frames of data to lower the number of frames per second, or will add frames of data to increase the number of frames per second."*

The result of a simple dropping or skipping of a frame is that the adjacent frames are not

altered in any way. The rate is lesser than the original rate and the remaining frames are original

in their character. Claims 1 and 11 therefore are again rejected.

As for claims 2, 11 and 29, frame rate increasing or decreasing inherently requires temporal processing of the video information by (1) adding by some form of interpolation to generate interposing frames to increase the frame count/unit time, and (2) by dropping frames to remove video information in a lessening of frames per unit time. Dye also includes a graphics processor (graphics engine 212 shown, e.g., in Fig. 5) to provide various video processing including scaling (e.g. sections [0117], [0120] and [0249]).

Considering claim 30, the device can be a set-top box, mentioned previously (component 57 in Fig. 1B).

As for claim 14, Dye mentions the MPEG video format as an option for receiving A/V streams by the STB (e.g. section [0107]). The MPEG stream is characterized by header data followed by payload data per unit transmission frame. Inherently characteristic of the header data is various data pertaining to video parameters including frame rate (see col. 3 lines 41-43 of 5,111,292 cited herein which describes the MPEG stream structure).

As for claims 3 and 15, the generating of and interposing frame (involving the frame rate increase) involves both the odd and even fields of an NTSC video formatted signals in forming of the HDTV signal (e.g. section 0116].

Regarding claims 7 and 12, Dye decodes the received signal (140 in Fig. 3 detailed in Fig. 5), processes it and encodes the processed A/V signal into (what can be) an NTSC format for presentation on the analog display unit(section [0116]).

As for claims 8 and 13, Dye discloses a television and STB connected to a standard cable medium, for example (section [0082]). Televisions and cable boxes both have tuners for

demodulating the received A/V signals at respective channel bands. Dye also allows for

peripheral devices to be connected (e.g. section [0092]).

As for claim 9, the format data is in the header (noted above regarding claim 14).

Considering claim 10, the compression format can MPEG2 (section [0107]).

As noted previously, Dye points out that the frame rate can be adjusted to match the

VDRL (Video Display Refresh List) and the display device by increasing or decreasing the rate,

whichever applies. He gives some examples of well known video formats having designated

frame rate, including NTSC, PAL film and HDTV (sections [0086] and [0097]), and points out

that other analog or digital formats can be used.

In view of this explicit allowance, it would have been obvious to one of ordinary skill in

the art to convert the frame rate to accommodate any well known format, such as PAL, NTSC,

film rate (i.e. 24 Hz), VGA, XGA, etc. from the various A/V sources that can be applied (Dye

specifies plural input sources and peripherals (sections [0082] – [0084]), for presentation on the

display device that can also be accommodate any format in its native mode, thereby meeting

claims 4-6.

2.   Claims 21-23 and 25-28 are now rejected under 35 U.S.C. 103(a) as being unpatentable

over Voois et al. in view of any one of Youn, Chaddha, Yamaguchi, Selby and Brooks (all made

of record in the last Office action).

Reviewing the videoconferencing system of Voois (noting particularly Figs. 1, 2, 6K and

6Q), it includes a first personal multimedia device (set-top box terminal 110: col. 4 lines 39-42)

that outputs video signals in a first format (PAL or NTSC: stage 132 in Fig. 2). Voois points out

that video input 126 can be an analog camera but also a digital camera whose output must be

converted into standard displayable PAL/NTSC television format for display on unit 132.

(Voois also points out that other A/V sources are available from plural ports 121 and 123

as well as through ISDN lines: col. 6 line 23+, all of which would have to be formatted into PAL

or NTSC modes for presentation). Camera 126 read on the claimed first video capture device

wherein display 130 can present the locally captured video data (e.g. Fig. 6K). Voois also points

out that another identical STB set-up 112 is connected to the STB 110 through line 114 (col. 4

lines 32-36). That set-up would accordingly include the same system components including its

own capture device, and would operate in a respective second format (its own PAL or NTSC

format) which could be in the same format or different from the format of the first STB 110,

thereby meeting claim 21 and 23.

As noted above, Voois allows for plural different display modes and therefore different

frame rates (PAL and NTSC characterized by different frame rates as well as line counts). Voois

also allows for the capability of increasing or decreasing the frame rate of display (col. 9 line 50

– col. 10 line 12) which would require processor 120 to interpolate or drop frames in a scaling

procedure.

Although Voois does not specifically say that the frame rate conversion is carried out to

match the native display format but for providing selective image quality (i.e. resolution

quantization/frame rate trade-off), it would have been obvious to one of ordinary skill in the art

to include consideration for compatibility with the local display unit 130 for acceptable

presentation quality thereon.

It would have been obvious to one of ordinary skilled in the art to drop or skip frames to achieve a lesser frame rate instead of by blending, for the benefit of minimizing processing, such skipping or dropping being expressly disclosed in:

(1) section [0056] of Youn, who states that *"frame skipping is also needed when an end-user only supports a lower frame-rate."*

(2) section [0071] of Chaddha, where it says: *"If a frame rate lower than that provided .. temporal layers can be dropped which are unnecessary for achieving the desired frame rate."*

(3) section [0029] of Yamaguchi where it is stated that *"a frame conversion method ... comprising a second frame rate that is lower than the first frame rate ... by means of a frame-based skip process ..."*

(4) section [0034] of Selby who points out that *"for frame rate down conversion, one of the input frames is dropped from the output sequence."* and

(5) col. 7 lines 24-26 of Brooks discloses that *"frame rate block will drop frames of data to lower the number of frames per second, or will add frames of data to increase the number of frames per second."*

As for claim 23, a third STB set-up can be included (e.g. col. 1 lines 40-51; 10 lines 19-29).

Regarding claim 25, interpolation to generate a temporally-interposed frame typically involves both odd and even field data from frames adjacent to the new frame in question, which provides the most likely candidate video data that would be presented between the adjacent real frames.

As for claims 26-28, it would have been obvious to one of ordinary skill in the art to adopt any of the well known video standards characterized by their respective frame rates, including PAL, NTSC, film (24 Hz) and HDTV since Voois points out that video sources can be from any of plural well known media (PSTN, internet, LAN, WAN) and that the display devices can be a television, computer monitor or other devices (col. 4 lines 2-10).

3.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor R. Kostak whose telephone number is (571) 272-7348. The examiner can normally be reached on Monday - Friday from 6:30am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David W. Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any response to this final action should be mailed to:

.Box AF
Commissioner of Patents and Trademarks
P.O. Box 1450
Alexandria, Virginia 22313-1450

Or faxed to:

(571) 273-8300

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Customer Service Office whose telephone number is (703) 308-HELP.

Victor R. Kostak
Primary Examiner
Art Unit 2622

VRK